Remarks:

Reconsideration of the application is respectfully requested.

Claims 1 - 11 are presently pending in the application. New claim 11 has been added. As it is believed that the claims were patentable over the cited art in their previously presented form, the claims have not been amended to overcome the references.

In item 6 of the above-identified Office Action, claims 1 – 3, 5 and 7 - 9 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by W.R. Stevens, "TCP Timeout and Retransmission" ("**STEVENS**").

In item 8 of the Office Action, claims 1 – 3, 5 and 7 - 9 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over **STEVENS** in view of U. S. Patent Application Publication No. 2002/0089930 to Aceves et al ("**ACEVES**"). In item 9 of the Office Action, claims 4, 6 and 10 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over **STEVENS** in view of U. S. Patent No. 6,222,829 to Karlsson et al ("**KARLSSON**"). In item 10 of the Office Action, claims 4, 6 and 10 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over **STEVENS** in view of **ACEVES**, and further in view of **KARLSSON**.

Applicant respectfully traverses the above rejections.

First, as discussed in the Amendment filed on September 15, 2008 ("the previous Amendment"), in connection with the present case, Applicant's claims require, among other things, a method or device **to perform a slow start algorithm, wherein a second number of user data packets from the series of user data packets are transmitted to the receiver at a later time than the transmission of a first number of user data packets from the receiver**, wherein "a later time" is defined such that it is **before a time of receipt of a confirmation of receipt by the transmitter of the user data packets**.

However, **STEVENS** does not disclose or render obvious all of the elements of claim 1.

Rather, **STEVENS** describes the TCP Slow Start mechanism. In **STEVENS**, this mechanism has two distinct phases: (1) an exponential growth phase; and (2) a linear growth phase.

During the exponential growth phase of **STEVENS**, Slow-start works by increasing the TCP congestion window each time an acknowledgment is received. It increases the window size by the number of segments acknowledged. This happens until either

an acknowledgment is not received for some segment or a predetermined threshold value is reached. If a loss event occurs, TCP assumes this it is due to network congestion and takes steps to reduce the offered load on the network. Once a loss event has occurred or the threshold has been reached, TCP enters the linear growth phase in which the window size is increased more gradually.

Referring to Figure 21.2 in **STEVENS**, the sender initially has a window size of one, and sends a first (single) packet at point 1. After the first packet has been acknowledged (ack 257 at point 2), the window size from the sender is increased to two, and so two further packets are sent (one at point 3 and one at point 4). These packets are acknowledged by acknowledgements ack 513 and ack 769 (sent at points 5 and 8 respectively). Receipt of acknowledgement 513 causes the sender to increase its sending window again by one, so that the window size is three. However, since there has not yet been an acknowledgement received in respect of the packet sent at point 4, this means that two user packets are sent (one at point 6 and one at point 7) which leaves three packets outstanding (i.e. the complete size of the window). It seems that in this implementation, the window size at the sender has a maximum of three because subsequent receipt of acknowledgement 769 does not cause the sender to increase its

sending window further and so only one user packet is sent (at point 9).

Also in **STEVENS**, the packets sent from the side identified as slip.1024 and the acknowledgements sent from the side identified as vangogh.discard are individual packets and individual acknowledgements. They are not groups of packets.

At best, **STEVENS** discloses transmitting a first number of user data packets (corresponding to the sending of packets at points 3 and 4) and transmitting a second number of user data packets (corresponding to the sending of packets at points 6 and 7). Applicant's claims require, among other limitations, **a confirmation of receipt, transmitted on receipt of the first number of user data packets, but received after the second number of user data packets are transmitted.** However, as is clear from the above discussion of **STEVENS**, in **STEVENS**, the packets at points 6 and 7 are **not** transmitted **before** there has been received "a confirmation of receipt transmitted on receipt of [a] first number of user data packets".

Rather, in **STEVENS**, at the time the packets at points 6 and 7 are transmitted, a confirmation of receipt has, in fact, already been received a with respect to the packet sent at point 3 of **STEVENS**. In **STEVENS**, although an acknowledgement of

the packet sent at point 4 is still outstanding when the packets at points 6 and 7 are sent, the packets sent at points 6 and 7 are being sent **as a direct response** to a confirmation acknowledging the receipt of the packet sent at point 3 in **STEVENS.**

Consequently, **STEVENS** does **not** teach or suggest, among other limitations of Applicant's claims, **a slow start algorithm** transmitting a second number of user data packets to a receiver after the transmission of a first number of user data packets, but before receiving at the transmitter a confirmation of receipt of the first number of user data packets, as required by Applicant's claims.

Furthermore, **STEVENS** does not render obvious Applicant's claims. **STEVENS** clearly discloses that a packet is transmitted, and, resultantly, an acknowledgement is received, wherein **the receipt of this acknowledgement results in the transmission of a further packet** (or further packets). Thus, **in the TCP slow start algorithm** of **Stevens**, new packets are only being sent **in response to** an acknowledgement of a previously transmitted packet being received.

Thus, if **STEVENS** sends a packet while there is still an outstanding acknowledgement, the outstanding acknowledgement

relates to a separate chain of transmitting packets and receiving acknowledgements than triggered the transmission of the further packets. In contrast to **STEVENS**, Applicant's claims require transmitting a second number of user data packets after the transmission of a first number of user data packets, but prior to the confirmation of receipt **of the first number of user data pa**ckets is received by the transmitter. Thus, the transmission of the second number of user data packets is measured relative to the transmission of the first number of user data packets (i.e., after their transmission, but before receiving confirmation of their receipt), and is not merely to a randomly chosen one previously transmitted packet.

The **STEVENS** TCP Slow Start mechanism provides a rapid ramp-up of sending data packets within the constraints of receiving acknowledgements for individual packets. As such it contains no teaching or suggestion that a second number of user data packets is transmitted at a later time than a first number, but before the confirmation of receipt of a first number has been received. To modify **STEVENS** to include such a feature would impermissibly render the device of **STEVENS** inoperative for its intended use. See, for example, M.P.E.P. § 2143.01(V).

In response to Applicant's previously made arguments, item 4 of the present Office Action stated, in part:

> Examiner respectfully disagrees with Applicant's interpretation of the prior art. **Stevens, in Figure 21.7, makes clear that a second number of user data packets (those transmitted from slip.1024 at 54 and 55) are transmitted before there has been received a confirmation of receipt transmitted on receipt of a first number of user data packets** (confirmation of packets transmitted from slip.1024 at 50 and 52 is not received by slip.1024 until much later [note that the diagram is slightly different due to the lost segment 45, which causes duplicate acks]). [emphasis added by Applicant]

However, it should be noted that Applicant's claims recite a **slow start algorithm**. Although Stevens includes disclosure of a slow start algorithm, this disclosure is **with respect to Figure 21.2** of **STEVENS**. See, for example, the end of section 21.4 of **STEVENS** (i.e., "We described the slow start algorithm in Section 20.6. We can see it in action again in Figure 21.2."). Thus, Fig. 21.7 of **STEVENS**, pointed to in item 4 of the Office Action, does **not** relate to a **slow start algorithm**, but rather, relates to a subsequent data transmission, described, for example, in connection with Figure 21.6 of **STEVENS** (i.e., "We can immediately see the three retransmissions around times 10, 14, and 21 in Figure 21.6. At each of these three points we can also see that only one segment is retransmitted, because only one dot dips below the upward slope. Let's examine the first of these dips in detail (around the 10-second mark). From the tcpdump output we can

put together Figure 21.7.") Note that **STEVENS** actually describes Figure 21.6 as "Packet exchange for retransmission **around the 10-second mark.**"

Section 4 of the Office Action further alleged, in part:

> In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., that a receipt is not transmitted after every packet, but only after a number of packets) are not recited in the rejected claim(s).

However, Applicant did not make the argument alleged above. Rather, in the previous Amendment, Applicant stated, in part:

> However, claim 1 recites that sending of the first number of user data packets is related to the sending of the second number of user data packets by a confirmation of receipt *in respect of the first number of user data packets*, not in relation to one previous packet. [emphasis in original]

Item 4 of the Office Action additionally stated, in part:

> Examiner agrees that Stevens does not explicitly disclose delayed acknowledgements. However, this feature is explicitly disclosed by Aceves [Paragraph 0044], among others, who states that delayed acknowledgements are an inherent part of the TCP protocol. Moreover, under the standard TCP implementation, as explained by Stevens, packet acknowledgements are cumulative - an ack for packet N+1 inherently acknowledges packets 1..N as well.

However, the above-quoted portion of item 4 of the Office Action does **not** point out with particularity how the concept

of "delayed acknowledgements" allegedly applies to Applicant's claimed invention.

On page 4 of the Office Action, item 4 of the Office Action further states, in part:

> Applicant alleges that modifying the Stevens TCP Slow Start mechanism with delayed or cumulative acknowledgements "would render the device inoperative for its intended use.

Applicant's respectfully point out that the foregoing statement is an inaccurate and out-of-context summation of the statement made in the previous Amendment. In that previous Amendment, as well as herein, Applicant stated, in part:

> The Stevens TCP Slow Start mechanism provides a rapid ramp-up of sending data packets within the constraints of receiving acknowledgements for individual packets. As such it contains no teaching or suggestion that a second number of user data packets is transmitted at a later time which is before a confirmation of receipt of a first number of user data packets has been received. To modify Stevens to include such a feature would render the device inoperative for its intended use.

As can be seen, Applicant put forward an argument that it would not have been obvious to modify the slow start of Stevens to produce claim 1. In response to Applicant's above-quoted argument, item 4 of the Office Action alleged, in part:

> There is no reason to believe that slow start and delayed/cumulative acknowledgements are incompatible.

Item 4 of the Office Action goes on to point to paragraph [0044] of the **ACEVES** reference, among other references, as allegedly teaching a combination of slow start and delayed/cumulative acknowledgements. As will be discussed more fully herebelow, Applicant fails to see a relationship between paragraph [0044] of **ACEVES** and Applicant's claimed invention.

With regard to the rejections of Applicant's claims 1 – 3, 5 and 7 – 9 made in item 6 of the Office Action, Applicant notes that the Examiner is making arguments by selectively picking features of different devices of **STEVENS** and combining them. However, it is not so simple to, in fact, combine the selected features in the manner suggested in the Office Action. In particular, the Office Action first refers to section 21.4 of **STEVENS**, while discussing the disclosure of a slow start algorithm in **STEVENS**. The Office Action then goes on to mix together two different disclosures of **STEVENS**, i.e., the disclosure in section 21.2 of **STEVENS** and the disclosure in section 21.7 of **STEVENS**. However, with respect to Figure 21.2 of **STEVENS**, the Office Action puts forward the same arguments to which Applicant replied in the previous Amendment.

As discussed above and in the previous Amendment, Applicant's claims require, among other limitations, a transmission of a first number of user data packets to the receiver, followed by

a transmission of a second number of user data packets to the receiver at a later time, but before the transmitter receives from the receiver a confirmation acknowledging receipt of **the first number of user data packets**.

STEVENS simply **cannot** disclose this feature of Applicant's claims because, as discussed above, the packets sent at points 6 and 7 of **STEVENS** are sent at a time when: (i) an acknowledgement **has been received** with regard to the packet sent at point 3 of **STEVENS**; and (ii) an acknowledgement **has not been received** with respect to the packet sent at point 4 of **STEVENS**. As such, **STEVENS** teaches, in fact, transmitting the packets sent at points 6 and 7 of **STEVENS in direct response to a confirmation of the receipt of the packet sent at point 3** of **STEVENS**, and thus is contrary to Applicant's claimed invention, regardless of what happens with the packet sent at point 4 of **STEVENS**.

Further, section 21.7 of **STEVENS**, pointed to in the Office Action, does not relate to a slow start algorithm, as discussed above. Thus, the discussion in section 21.7 of **STEVENS** is not combinable with the embodiments of **STEVENS** that do actually relate to a slow start algorithm. The mixing and matching of different embodiments of **STEVENS**, only some of which even relate to a slow start algorithm, does **not** teach or

suggest Applicant's claimed invention. Rather, the inventions described in **STEVENS** in connection with Figures 21.2 and 21.7 are **different** and **distinct** from one another, the elements of which are not combinable in the manner suggested in the Office Action without changing the principle of operation of one or the other embodiments. See, for example, M.P.E.P. § 2143.01(VI).

In particular, Applicant notes that it would not be obvious to a person of ordinary skill in this art to swap features between a device performing a slow start algorithm and a device performing a normal steady-state transmission. Rather, a slow start algorithm is particularly configured to deal with uncertainties that might exist in a connection. In a slow start algorithm, when a connection is established, TCP starts slowly at first, so a transmitter can assess the bandwidth of the connection and avoid swamping a receiver or any other devices or links in the connection path. As such, in a slow start algorithm, instead of immediately sending enough data which might possibly swamp a receiver during the initial phase of communication, the transmitter transmits a conservative amount of data and gradually increases it as the transmitter discovers more about the performance of the communications path. This gradual increase is performed by the transmitter increasing a window each time an acknowledgment is received.

In particular, the transmitter increases the window size by a number of segments acknowledged. In a slow start system, this process is repeated until either an acknowledgment is not received for some segment, or until a predetermined threshold value is reached. The slow start algorithm was created for a particular purpose and to achieve a particular result, and thus, has a different principle of operation from a system performing normal steady-state transmission.

As such, it would not be obvious for a person of ordinary skill in this art to put a slow start feature into a steady-state system, or vice-versa. Rather, the **STEVENS** reference would require an explicit teaching to make the combination suggested in the Office Action, in order for a person of ordinary skill in this art to even think to incorporate a feature from the normal steady-state transmission described in connection with Figure 21.7 of **STEVENS** into the slow start algorithm described in connection with Figure 21.2 of **STEVENS**. **STEVENS** does **not** provide such a teaching.

In addition to alleging that **STEVENS** anticipates Applicant's claims 1 and 8, item 8 of the present Office Action additionally rejects claims 1 and 8 as allegedly being obvious over **STEVENS** in view of **ACEVES**. However, as was done in item 6 of the Office Action, the arguments present in item 8 of the

Office Action impermissibly mix-and-match the disclosures from two different and distinct embodiments of **STEVENS**, i.e., that of Figures 21.2 and 21.7 of **STEVENS**. The **ACEVES** reference, however, does not cure this problem of the **STEVENS** reference.

More particularly, page 8 of item 8 of the Office Action acknowledged that **STEVENS** did not explicitly disclose receiving a "**single**" confirmation of receipt for the first number of user data packets. Rather, the Office Action pointed to paragraph [0044]of **ACEVES** as allegedly teaching receiving a "**single**" confirmation of receipt for the first number of user data packets. However, the receipt in **ACEVES** of a single confirmation for a plurality of user data packets is irrelevant to curing the deficit in the teachings of **STEVENS** with regard to Applicant's claimed invention. Applicant's claimed invention relates to, among other things, the transmission of a second number of user data packets after the transmission of a first number of user data packets, but prior to receiving confirmation that the first number have been received. **ACEVES** does not teach or suggest, among other limitations of Applicant's claims, a slow start algorithm having the particularly recited timing of the transmission of the second number of user data packets, as particularly recited in Applicant's claims. This feature of Applicant's claims is not disclosed in connection with the slow start

algorithm embodiment of **STEVENS** (i.e., Fig. 21.2 of **STEVENS**), nor is it disclosed by **ACEVES**. Thus, the disclosure in **ACEVES** of receiving a "single" confirmation of receipt for a number of user data packets would **not** teach, suggest or motivate a person of ordinary skill in this art to modify the slow start algorithm described in connection with Figure 21.2 of Stevens to produce Applicant's particularly claimed invention. Similarly, the disclosure in **ACEVES** of receiving a "single" confirmation of receipt for a number of user data packets would **not** teach, suggest or motivate a person of ordinary skill in this art to modify the **non-slow start algorithm** described in connection with Figure 21.7 of Stevens to produce Applicant's particularly claimed invention. Put quite simply, the disclosure in **STEVENS** of the device of Figure 21.7 of **STEVENS** does **not** relate to a slow start algorithm and, therefore, portions of the invention of Figure 21.7 of **STEVENS** cannot simply be lifted out of that invention and dropped into the different and distinct invention of another figure of **STEVENS** without any teaching, suggestion or motivation to do so. Nothing in the **ACEVES** reference (in paragraph [0044] or elsewhere) provides such a teaching, suggestion or motivation to a person of ordinary skill in this art to impermissibly alter the principle of operation of the embodiment of Figure 21.2 of **STEVENS** with a feature disclosed in connection with a different and distinct invention of a different figure of

STEVENS. Put quite simply, nothing in **ACEVES'** disclosure of paragraph [0044] would lead a person of ordinary skill in this art to modify Figure 21.7 of **STEVENS** in any way that would produce Applicant's particularly claimed slow start algorithm.

For the foregoing reasons, among others, Applicant's claims are believed to be patentable over the **STEVENS** and **ACEVES** references. The **KARLSSON** reference, cited in the Office Action in combination with **STEVENS** and **ACEVES** against certain of Applicant's dependent claims, does not cure the above-discussed deficiencies of the **STEVENS** and **ACEVES** references.

It is accordingly believed that none of the references, whether taken alone or in any combination, teach or suggest the features of claims 1, 8 and 11. Claims 1, 8 and 11 are, therefore, believed to be patentable over the art. The dependent claims are believed to be patentable as well because they all are ultimately dependent on claims 1 or 8.

In view of the foregoing, reconsideration and allowance of claims 1 - 11 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel would appreciate receiving a

telephone call so that, if possible, patentable language can be worked out.

Additionally, please consider the present as a petition for a two (2) month extension of time, and please provide a two (2) month extension of time, to and including, April 27, 2009, to respond to the present Office Action.

The extension fee for response within a period of two (2) months pursuant to Section 1.136(a) in the amount of $490.00 in accordance with Section 1.17 is enclosed herewith.

Please provide any additional extensions of time that may be necessary and charge any other fees that might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner Greenberg Stemer LLP, No. 12-1099.

Respectfully submitted,

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For Applicant

April 27, 2009

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